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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,688	06/12/2001	Jae-Yoel Kim	678-693 (P9800)	4991

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Paul J. Farrell, Esq.
DILWORTH & BARRESE, LLP
333 Earle Ovington Blvd.
Uniondale, NY 11553

EXAMINER	
TORRES, JOSEPH D	
ART UNIT	**PAPER NUMBER**
2133	11

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/879,688	KIM ET AL.	
	Examiner	Art Unit	
	Joseph D. Torres	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-31* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-7, 14-18 and 25 drawn to a Frame Encoding Apparatus with using Reed-Muller codes, classified in class 714, subclass 794.

II. Claims 8, 9, 19 and 20, drawn to a Frame Encoding Apparatus with a Mask Sequence Generator for Creating a Plurality of Mask Sequences, Whose Minimum Distance by a Sum of the Mask Sequences and the Biorthogonal Sequences is at Least 20, classified in class 714, subclass 776.

III. Claims 10-13 and 21-24, drawn to a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, classified in class 714, subclass 790.

IV. Claims 26-28 and 31, drawn to a Frame Encoding Apparatus with a (48, 10) Code Generator for Generating 48 Coded Symbols by Using Length 48 Codes which are Punctured Codes of Length 64 Walsh Codes, classified in class 370, subclass 209.

V. Claims 29 and 30, drawn to A Method for Encoding 10 Consecutive Input Bits Indicating a TFCI using a Second Order Reed-Muller Coding for Generating 64 Coded Symbols Using Length 64 Walsh Codes, classified in class 714, subclass 794.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I, a Frame Encoding Apparatus with using Reed-Muller codes, and Group II, a Frame Encoding Apparatus with a Mask Sequence Generator for Creating a Plurality of Mask Sequences, Whose Minimum Distance by a Sum of the Mask Sequences and the Biorthogonal Sequences is at Least 20, are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination, Group I a Frame Encoding Apparatus with using Reed-Muller codes, as claimed does not require the particulars of the subcombination, Group II a Frame Encoding Apparatus with a Mask Sequence Generator for Creating a Plurality of Mask Sequences, Whose Minimum Distance by a Sum of the Mask Sequences and the Biorthogonal Sequences is at Least 20, as claimed because the combination does not require that the mask sequence generator create mask sequences, whose minimum distance by a sum of the mask sequences and the biorthogonal sequences is at least 20. The subcombination has separate utility such as in frame encoding devices not using Reed-Muller.

Inventions Group I, a Frame Encoding Apparatus with using Reed-Muller codes, and Group III, a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination, Group I a Frame Encoding Apparatus with using Reed-Muller codes, as claimed does not require the particulars of the subcombination, as claimed does not require the particulars of the subcombination, Group III a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, as claimed because the combination does not require that the orthogonal sequence generator create first sequences having a length m by puncturing base orthogonal sequences or the mask sequence generator create second sequences having a length m by puncturing base mask sequences. The subcombination has separate utility such as in frame encoding devices not using Reed-Muller.

Inventions Group I, a Frame Encoding Apparatus with using Reed-Muller codes, and Group IV, a Frame Encoding Apparatus with a (48, 10) Code Generator for

Generating 48 Coded Symbols by Using Length 48 Codes which are Punctured Codes of Length 64 Walsh Codes, are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination, Group I a Frame Encoding Apparatus with using Reed-Muller codes, as claimed does not require the particulars of the subcombination, Group IV a Frame Encoding Apparatus with a (48, 10) Code Generator for Generating 48 Coded Symbols by Using Length 48 Codes which are Punctured Codes of Length 64 Walsh Codes, as claimed because the combination does not require a (48, 10) code generator for generating 48 coded symbols by using length 48 codes which are punctured codes of length 64 Walsh codes. The subcombination has separate utility such as in frame encoding devices not using Reed-Muller.

Inventions Group II, a Frame Encoding Apparatus with a Mask Sequence Generator for Creating a Plurality of Mask Sequences, Whose Minimum Distance by a Sum of the Mask Sequences and the Biorthogonal Sequences is at Least 20, and Group III, a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable.

In the instant case, invention Group II, a Frame Encoding Apparatus with a Mask Sequence Generator for Creating a Plurality of Mask Sequences, Whose Minimum Distance by a Sum of the Mask Sequences and the Biorthogonal Sequences is at Least 20, has separate utility such as in a frame encoding device with a mask sequence generator for creating a plurality of mask sequences, whose minimum distance by a sum of the mask sequences and the biorthogonal sequences is at least 20. In the instant case, invention Group III, a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, has separate utility such as in a frame decoding device with an orthogonal sequence generator for creating first sequences having a length m by puncturing a plurality of base orthogonal sequence and a mask sequence generator for creating second sequences having a length m by puncturing base mask sequences. See MPEP § 806.05(d).

Inventions Group II, a Frame Encoding Apparatus with a Mask Sequence Generator for Creating a Plurality of Mask Sequences, Whose Minimum Distance by a Sum of the Mask Sequences and the Biorthogonal Sequences is at Least 20, and Group IV, a Frame Encoding Apparatus with a (48, 10) Code Generator for Generating 48 Coded Symbols by Using Length 48 Codes which are Punctured Codes of Length 64 Walsh Codes, are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be

separately usable. In the instant case, invention Group II, a Frame Encoding Apparatus with a Mask Sequence Generator for Creating a Plurality of Mask Sequences, Whose Minimum Distance by a Sum of the Mask Sequences and the Biorthogonal Sequences is at Least 20, has separate utility such as in a frame encoding device with a mask sequence generator for creating a plurality of mask sequences, whose minimum distance by a sum of the mask sequences and the biorthogonal sequences is at least 20. In the instant case, invention Group IV, a Frame Encoding Apparatus with a (48, 10) Code Generator for Generating 48 Coded Symbols by Using Length 48 Codes which are Punctured Codes of Length 64 Walsh Codes, has separate utility such as in a frame encoding device with a (48, 10) code generator for generating 48 coded symbols by using length 48 codes which are punctured codes of length 64 Walsh codes. See MPEP § 806.05(d).

Inventions Group III, a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, and Group IV, a Frame Encoding Apparatus with a (48, 10) Code Generator for Generating 48 Coded Symbols by Using Length 48 Codes which are Punctured Codes of Length 64 Walsh Codes, are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the

instant case, the combination, Group III, a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, as claimed does not require the particulars of the subcombination, Group IV, a Frame Encoding Apparatus with a (48, 10) Code Generator for Generating 48 Coded Symbols by Using Length 48 Codes which are Punctured Codes of Length 64 Walsh Codes, as claimed because the combination does not require a (48, 10) code generator for generating 48 coded symbols by using length 48 codes which are punctured codes of length 64 Walsh codes. The subcombination has separate utility such as in a frame encoding device using a (48, 10) code generator for generating 48 coded symbols by using length 48 codes which are punctured codes of length 64 Walsh codes not requiring an orthogonal sequence generator for creating first sequences having a length m by puncturing a plurality of base orthogonal sequences nor a mask sequence generator for creating second sequences having a length m by puncturing base mask sequences.

Inventions Group V, A Method for Encoding 10 Consecutive Input Bits Indicating a TFCI using a Second Order Reed-Muller Coding for Generating 64 Coded Symbols Using Length 64 Walsh Codes, and Group III, a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask

Sequences, are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination, Group V A Method for Encoding 10 Consecutive Input Bits Indicating a TFCI using a Second Order Reed-Muller Coding for Generating 64 Coded Symbols Using Length 64 Walsh Codes, as claimed does not require the particulars of the subcombination, as claimed does not require the particulars of the subcombination, Group III a Frame Encoding Apparatus with an Orthogonal Sequence Generator for Creating First Sequences having a Length M by Puncturing a Plurality of Base Orthogonal Sequences and a Mask Sequence Generator for Creating Second Sequences having a Length M by Puncturing Base Mask Sequences, as claimed because the combination does not require that the orthogonal sequence generator create first sequences having a length m by puncturing base orthogonal sequences or the mask sequence generator create second sequences having a length m by puncturing base mask sequences. The subcombination has separate utility such as in frame encoding devices not using Reed-Muller.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group III and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group IV and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group III and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group IV and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group IV and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group V and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group V is not required for Group I and vice versa, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

A telephone call was made to Paul J. Farell on 19 December 2003 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-746-7240.

Joseph D. Torres, PhD
Art Unit 2133

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	09/879,688	KIM ET AL.	
	Examiner	Art Unit	
	Joseph D. Torres	2133	

All Participants:

(1) *Joseph D. Torres*.

(2) *Michael Musella*.

Status of Application: *New Case*

(3) _____.

(4) _____.

Date of Interview: *10 March 2004*

Time: *12pm*

Type of Interview:

☒ Telephonic
☐ Video Conference
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☒ No
If Yes, provide a brief description: *N/A*.

Part I.

Rejection(s) discussed:
N/A

Claims discussed:
N/A

Prior art documents discussed:
N/A

Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:
Although, the Attorney did elect over the phone, because of the complexity of the claim language and because of changes in the claim groupings after careful analysis, the Examiner determined that a written Restriction was more appropriate.

Part III.

☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.
☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

(Examiner/SPE Signature)

(Applicant/Applicant's Representative Signature – if appropriate)